PIONEER®
The Art of Entertainment

Service Manual

ORDER NO.
CRT1701

DSP AUDIO PROCESSOR

DEQ-7200 UC,ES

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SAFETY INFORMATION (UC MODEL)

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SPECIFICATIONS

General

Power source	14.4 V DC (10.8 — 15.6 V allowable)
Grounding system	Negative type
Dimensions	
(DIN) (mounting size)	178 (W) x 50 (H) x 132 (D) mm
(nose)	188 (W) x 58 (H) x 17 (D) mm
(D) (mounting size)	178 (W) x 50 (H) x 137 (D) mm
(nose)	170 (W) x 46 (H) x 12 (D) mm
Weight	0.6 kg

Equalizer

Equalizing frequencies	
(15-band graphic equalizer)	25 Hz, 40 Hz, 63 Hz, 100 Hz, 160 Hz, 250 Hz, 400 Hz, 630 Hz, 1 kHz, 1.6 kHz, 2.5 kHz, 4 kHz, 6.3 kHz, 10 kHz, 16 kHz
Equalization range	±12 dB
Distortion	0.01% (1 kHz, 500 mV, 20 kHz LPF)
Frequency response	20 — 20,000 Hz (0, –1 dB)
Signal-to-noise ratio	85 dB (IEC-A network)
Input level/impedance	500 mV/22 kΩ
Output level/impedance	500 mV/1 kΩ
Maximum output level	1.5 V/1 kHz, 1% THD

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

2. OPERATIONS AND CONNECTION

Precautions

In case of trouble
When the unit dose not operate properly, contact your dealer or the nearest authorized PIONEER Service Station.

Never remove the top case of the unit to attempt check or repairs.

Memory Backup

When the car battery is removed or power cord of this unit is disconnected, and the power is not supplied for about 3 days, the settings of the position and equalizer curves, etc. are initialized.

Connecting the Units

Note:

- This unit is for vehicles with a 12-volt battery and negative grounding. Before installing it in a recreational vehicle, truck, or bus, check the battery voltage.
- To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.
- Refer to the owner's manual for details on connecting the power amp and other units, then make connections correctly.
- Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.
- Route and secure all wiring so it cannot touch any moving parts, such as the gear shift, handbrake, and seat rails. Do not route wiring in places that get hot, such as near the heater outlet. If the insulation of the wiring melts or gets torn, there is a danger of the wiring short-circuiting to the vehicle body.
- Don't pass the orange lead through a hole into the engine compartment to connect to the battery. This will damage the lead insulation and cause a very dangerous short.
- Do not shorten any leads. If you do, the protection circuit may fail to work when it should.
- Never feed power to other equipment by cutting the insulation of the power supply lead of the unit and tapping into the lead. The current capacity of the lead will be exceeded, causing over heating.
- When replacing fuse, be sure to use only fuse of the rating prescribed on the fuse holder.
- When the 2-speaker system is employed, use the front outputs of this unit. Otherwise, the effects of the sound field control cannot be obtained.

Connection Diagram
(Connecting to a head unit having front and rear inputs)
(Fig. 1)

1. Rear output
2. Front output
3. External input
4. Connecting cord with RCA pin plugs (sold separately)
   Connect red to red and white to white.
5. External (audio) output
6. Front input
7. Rear input
8. Head unit (Ex. KEH-P9250)
   In this connection, the MAIN IN switch in the head unit should be set to ON.
9. Blue
   To system control terminals of the head unit.
10. Blue
11. Front speakers
12. Rear speakers
13. Black (ground)
    To vehicle (metal) body.
14. Yellow
    To lighting switch terminal.
15. Orange
    To terminal always supplied with power regardless of ignition switch position.
16. Fuse resistor
17. Fuse holder

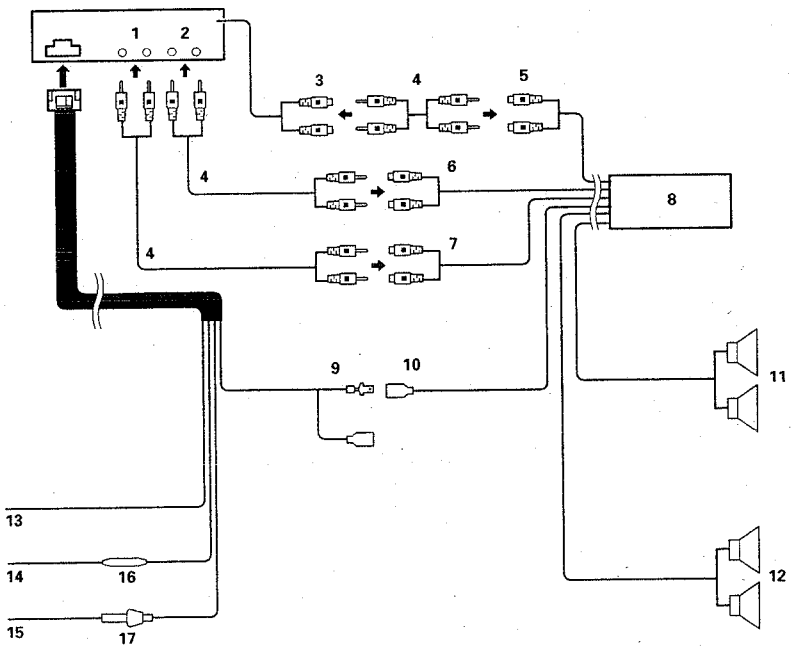


Fig. 1

Connection Diagram
(Connecting to a head unit which does not have front and rear inputs) (Fig. 2)

1. *Rear output*
2. Front output
3. External input
4. Connecting cord with RCA pin plugs (sold separately)
   Connect red to red and white to white.
5. Rear output
6. Front output
   Not used in this connection.
7. Sub-woofer output
   Not used in this connection.
8. Head unit (Ex. KEH-P8250)
9. Blue
   To system control terminals of the head unit and power amp.
10. Blue
11. Power amp (sold separately)
12. Front speakers
13. Rear speakers
14. Black (ground)
    To vehicle (metal) body.
15. Yellow
    To lighting switch terminal.
16. Orange
    To terminal always supplied with power regardless of ignition switch position.
17. Fuse resistor
18. Fuse holder

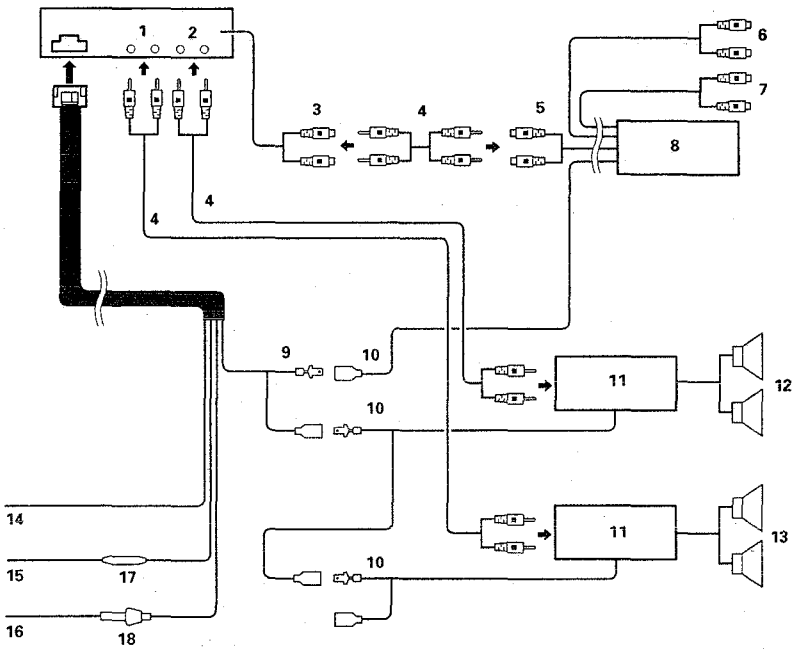


Fig. 2

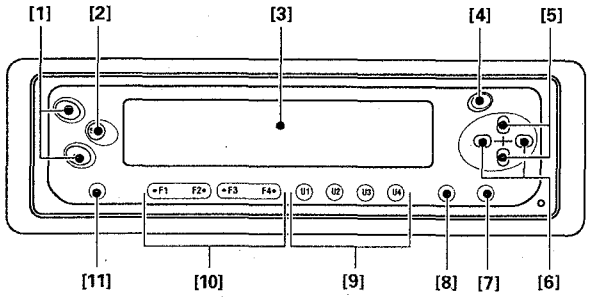


Fig. 3

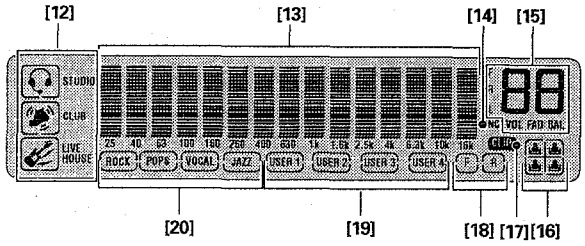


Fig. 4

Using the Clear Button

Pressing the Clear button will reset the microprocessor. Press the Clear button in the following cases:

- When using the unit for the first time after connecting it.
- When there is a misoperation.
- When the display indicates a misoperation.

Press the Clear button with the tip of a pen, etc. (Fig. 5)

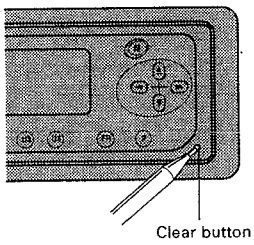


Fig. 5

Changing the Spectrum Analyzer Display

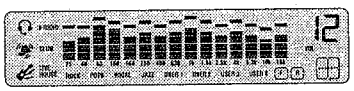
Parts Identification

Fig. 3
[3] Display
[11] Spectrum analyzer display selector button

Fig. 4
[13] Operation display

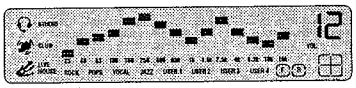
Each time button [11] is pressed, the operation display [13] changes in the sequence from A, B, C, D, E then F.

A: Peak Bound Display
This indicates the music energy level of each frequency by the height of the bar for each band, while also showing a temporary indication of level peaks.

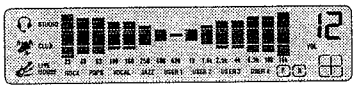


B: Symmetric Display
This indicates the music energy level of each frequency by width.

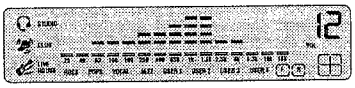
C: Peak Display
This indicates the music energy level of each frequency by the height of the bar for each band.



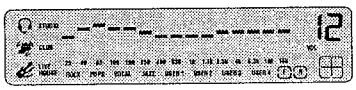
D: Radial Display
The sound intensity is displayed in a radial shape.



E: Winding Road Display
This displays an image giving the impression of traveling along a winding road. Speed changes depending on the music energy level.

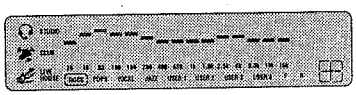


F: Graphic Equalizer Display
The current equalizer curve is displayed.



Demo Mode

When the audio signal is not input for more than 20 seconds, the display automatically switches to the demo mode. The dispaly is restored when an audio signal is input to this unit.



Setting the Head Unit

Parts Identification

Fig. 3
[1] Volume buttons
[3] Display

Fig. 4
[17] Sound clip indicator

When this unit is connected to the head unit, the volume, balance and fader can be adjusted with this unit. Before operating this unit, set the head unit as follows.

1. Press the (–) side of buttons [1] to set the volume of the unit to "VOL 0".
2. Set the volume of the head unit to "VOL 23".
3. Set the fader and balance of the head unit to center position.

- To adjust the volume, fader and balance on the head unit, refer to the Owner's Manual that accompanies the head unit.

Note:

- When the head unit volume is excessive (excessive input to the unit), "CLIP" [17] will be indicated on the display as a warning. In this case, turn the volume on the head unit down to the point where "CLIP" is no longer displayed.
- When you feel a distortion in the sound even though "CLIP" is not indicated on the display, turn the volume on the head unit down.
- The volume's set point is not indicated on the display when you adjust the volume on the head unit by tuning the volume control. In this case, set the volume control on the head unit to the position illustrated below, in accordance with step 2. (Fig. 6)

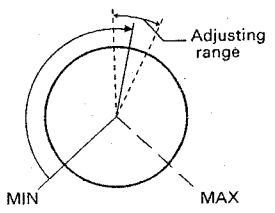


Fig. 6

Adjusting the Volume

Parts Identification

Fig. 3
[1] Volume buttons
[3] Display

Fig. 4
[15] Numeric display

Pressing the (+) side of buttons [1] increases the volume, while the (–) side of buttons [1] decreases it.
(Numeric display [15] shows "VOL 0 — VOL 30".)

Note:
- Always keep the volume inside the car at a level that allows you to hear outside sounds.

Adjusting the Listening Position

One of the conditions for reproduction of more natural music is to "clearly define the sound image positioning (listen to music at the center of the sound field)".

The position selector function appropriately adjusts the delay time and level of the sound from each speaker according to the seat position(s) and the number of people in the car and allows to recall this setting with a single button operation. This makes the listener(s) possible to obtain natural acoustic property regardless of the seat positions.

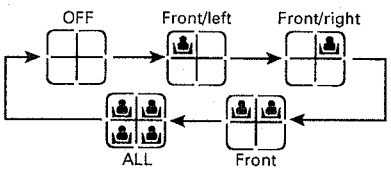
Parts Identification

Fig. 3
[3] Display
[4] Mode shift button
[5] Fader control buttons
[6] Balance control buttons
[7] Position selector button

Fig. 4
[13] Operation display
[15] Numeric display
[16] Position indicator

Setting the Listening Position (Position selector)

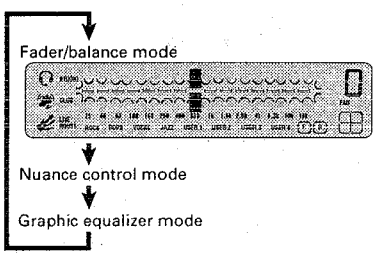
Set the listening position according to the position(s) of the listener(s).
Press button [7].
Each press of button changes the listening positions [16] as follows.



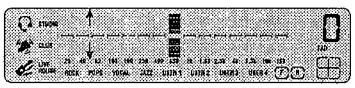
Fine tuning of the Position (Fader/Balance)

After choosing the position using the position selector function, it is possible to fine tune the sound image positioning by adjusting the fader and balance controls.
- The fine tuning can be applied independently for each position.
- The condition after fine tuning will be stored in memory as the setting for each position. The next time the position is recalled, the setting after fine tuning will be recalled.

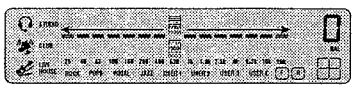
1. Press button [4] to switch to the fader/balance mode.
   Each press of button changes the mode as shown below.



2. Press (▲) or (▼) side of buttons [5] to adjust the volume balance between the front and rear (fader control).
   (Numeric display [15] shows "F25 — R25".)



3. Press (◄) or (►) side of buttons [6] to adjust the balance between the left and right (balance control).
   (Numeric display [15] shows "L25 — R25".)



Resetting the Position

The sound image positioning after fine tuning can be reset to the initial conditions of the fader and balance control.
Press and hold button [7] for more than 2 seconds.
A short beep sound is generated and the fader/balance are initialized.
- Only the currently selected position can be reset.

Note:
- The fader control is not used with a 2-speaker system. Set the fader to the center position.
- If your system is configured so that it does not use either the front or rear output of this unit, the position selector and fader will not function properly.
  If you system is a 4-speaker system which is configured without using either the front or rear output of this unit, the volume balance between the front and rear speakers should be adjusted on the head unit.

Adjusting the Equalizer Curve

Parts Identification

Fig. 3
[3] Display
[4] Mode shift button
[5] Nuance control up/down buttons
Level up/down buttons
[6] Frequency up/down buttons
[8] Speaker selector button
[9] User's curve memory buttons
[10] Factory preset curve buttons

Fig. 4
[13] Operation display
[14] Nuance control indicator
[15] Numeric display
[19] User's curve memory indicators
[20] Factory preset curve indicators

Selecting the speakers to be Equalized

Select the speakers to which the equalizer effect is applied, from the front, rear or both.
Press button [8].
Each press of button changes the speakers affected by the equalizer as shown below.

ON: The frame is displayed.
OFF: The frame is not displayed.

F R	Both front/rear speakers
F R	Front speakers only
F R	Rear speakers only

Equalizer Curve Recall

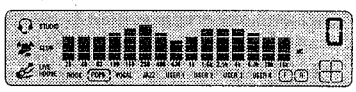
Four equalizer curves have been preset in memory (factory curves) to allow recalling with simple operation.

Factory Preset Curves

The 4 factory curves have been preset in the memory.

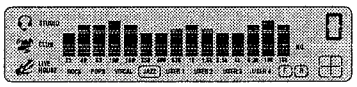
ROCK (F1)
Focuses on the band of rhythm section of rock music so that powerful sound can be reproduced with supplemented low and high ranges.

POPS (F2)
Particularly emphasizes the middle-range so that light pops sound can be enjoyed.



VOCAL (F3)
Emphasizes the portion of the voice band and minimizes the low-range to increase articulation. Use this mode to emphasize vocal signals or when listening to conversation.

JAZZ (F4)
Compared with ROCK mode, emphasizes the low- and high-ranges more intensively so the wide-range feeling can be obtained. Suitable to enjoy jazz music in a relaxed environment.



Recalling a Factory Curve

Press one of (F1) to (F4) buttons [10] to select the factory curve to be recalled. (The display frame [20] of the selected factory curve lights.)

Adjusting the Equalizer Curve

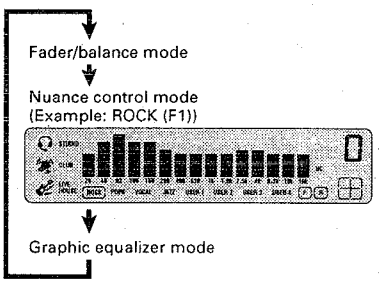
The equalizer curve can be adjusted in the following 2 ways.

Nuance control
Overall adjustment of the effect of equalizer curve (nuance control) is possible.

15-band graphic equalizer adjustment
The level of each of the 15 bands (at 2/3 octave intervals) can be adjusted.

Nuance Control

1. Press button [4] to switch to the nuance control mode.
   Each press of button changes the mode as shown below.

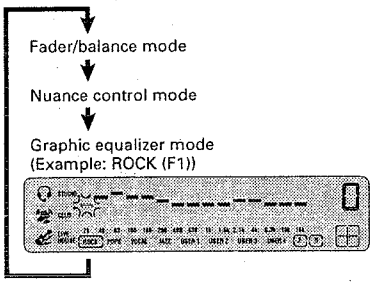


2. Recall the equalizer curve to be adjusted.
   Recall a factory curve or user's curve (equalizer curve created and stored in this unit by yourself).
   (Refer to "Recalling a Factory Curve" on page 7 and "Recalling a User's Curve" .)
- A user's curve in which no equalizer curve has been set (= flat curve) cannot be adjusted with nuance control.

3. Press (▲) or (▼) side of buttons [5] to apply nuance control.
   Pressing the (▲) side increases the amount of compensation (increases the difference between high and low levels.)
   Pressing the (▼) side decreases the amount of compensation (towards flat.)
   (Numeric display shows "–6 — 6".)
- The nuance control can be applied separately to the factory curves and user's curves.
- The condition after nuance control of each factor curve or user's curve is stored as the setting value for than curve. The next time the factory curve or user's curve is recalled, the equalizer curve after nuance control will be recalled.

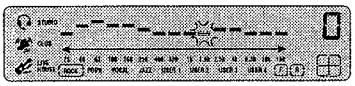
15-Band Graphic Equalizer Adjustment

1. Press button [4] to switch to the graphic equalizer mode.
   Each press of button changes the mode as shown below.



2. Recall the equalizer curve to be adjusted.
   Recall a factory curve or user's curve (equalizer curve created and stored in this unit by yourself).
   (Refer to "Recalling a Factory Curve" on page 7 and "Recalling a User's Curve" .)

3. Press (◄) or (►) side of buttons [6] to select the frequency to be adjusted.



25 Hz to 16 kHz (2/3 octave/step)

4. Press (▲) or (▼) side of buttons [5] to adjust the level.
   (Numeric display [15] shows "–6 — 6".)

5. Adjust other frequency bands by repeating steps 3 and 4 for each of them.
6. Store the adjusted equalizer curve in memory.
   The adjusted equalizer curve will be reset when another equalizer curve is recalled. If you want to retain the adjusted curve, store it in the memory of this unit.
   (Refer to "Storing Equalizer Curves" .)

Storing Equalizer Curves

The equalizer curves adjusted by the user can be stored as the user's curves in the memory under 4 buttons [9].

Storing a User's Curve in Memory

1. Adjust an equalizer curve as desired.
   (Refer to "Adjusting the Equalizer Curve" on page 7.)
2. Press and hold one of (U1) to (U4) of buttons [9] that you want to store the equalizer curve for more than 2 seconds.
   (The frame of the "USER 1 — USER 4" indicators [19] corresponding to the pressed button [9] blinks during storing and lights up after completion of storing.)
- If an equalizer curve has already been stored under the button, the previous memory is cleared and the new equalizer curve is stored in memory.
- When a equalizer curve is stored, its nuance control value is set to 0.

Recalling a User's Curve

The equalizer curves stored under buttons [9] (user's curves) can be recalled as required.
Press one of (U1) to (U4) of buttons [9] that store the user's curves to be recalled.
(The display frame [19] of the selected user's curve lights.)

Flat Curve Function

An equalizer can be reset to a flat curve with a simple operation.
Press and hold one of (F1) to (F4) of buttons [10] for more than 2 seconds.
The graphic equalizer mode is initiated and the corresponding equalizer curve is made flat.

Sound Field Control Function

The sound field control (SFC) function provides programs reproducing 3 typical sound field spaces of a studio, club and live house. The SFC makes it possible to reproduce a realistic sound field in the car compartment as if the listener(s) are actually present in that space.

Sound Field Programs Preset in this Unit

The following 3 sound field programs are preset.

STUDIO
Localizes the sound image to the axial sensitivity and does not add reverberation sound. Reproduces basic sound field by processing initial reflection sound from the walls of a relatively small mixing room.

CLUB
Reproduces music performed in discos for about 50 people. Suitable for reproducing a sound field with facilitated absorption of reverberation and enjoying music with powerful beat.

LIVE HOUSE
Reproduces music performed in a live house for 50 to 100 audiences. Highly effective for sound sources such as recorded gigs. Provides real reproduction of reflection from the walls and reverberation.

Parts Identification

Fig. 3
[2] Sound field control button
[3] Display

Fig. 4
[12] Sound field control indicators

Recalling a Sound Field Program

Press button [2] to select the desired sound field program.
Each press of button recalls the sound field program in the order of STUDIO → CLUB → LIVE HOUSE → SFC OFF → STUDIO ....
(The display frame [12] of the recalled sound field program lights.)
(When the SFC is OFF, all frames [12] go off.)

Using the Remote Control

When the DSP/MAIN UNIT switch in the remote controller supplied with head unit is set to "DSP", some functions of this unit can be performed with the remote controller.

- The volume buttons and the attenuator button operate this unit directly and do not operate the head unit. (The volume level of the head unit can be adjusted with the volume buttons in the head unit.)
- Some functions of this unit can be operated with the DSP button.

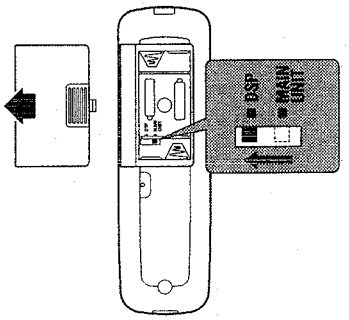


Fig. 7

Parts Identification and Function

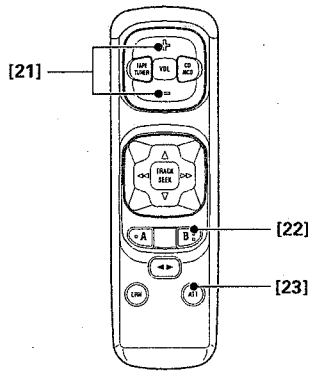


Fig. 8

[21] Volume buttons
Press the (+) side to increase volume and the (–) side to decrease volume.

[22] DSP button

Except when the user's curve is being recalled:
Used to recall factory preset equalizer curve. Each time the button is pressed, the selected factory preset equalizer curve changes in the sequence of ROCK → POPS → VOCAL → JAZZ → ROCK....

When the user's curve is being recalled:
Used to recall the user's curve. Each time the button is pressed, the selected user's curve changes in the sequence of USER 1 → USER 2 → USER 3 → USER 4 → USER 1 ....

[23] Attenuator button
Press to reduce the volume to 1/10 of its current setting ("ATT" is displayed in the operation display [13].)
Pressing again returns the volume to its original level.

- This function is available using the remote controller unit only.

3. DISASSEMBLY

● Removing the Case and Grille Assy

1.Removing the case.(not shown)
2.Removing the connector.
3.Disconnect the four stoppers indicated by arrows.
4.Removing the grille assy.

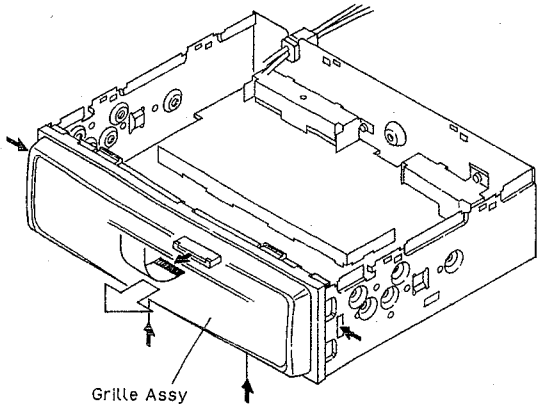


Fig.9

● Removing the Audio Unit

1.Unbend the tabs at location indicated by arrows until straight.
2.Removing the audio unit.

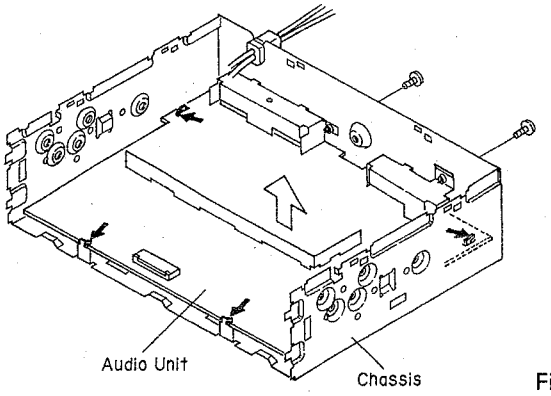
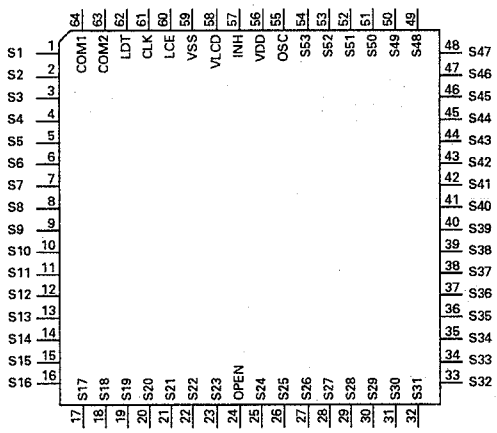


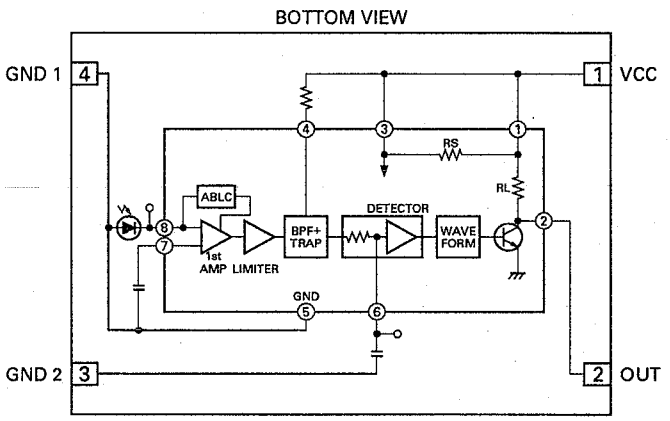
Fig.10

● ICs

LC7582EMT



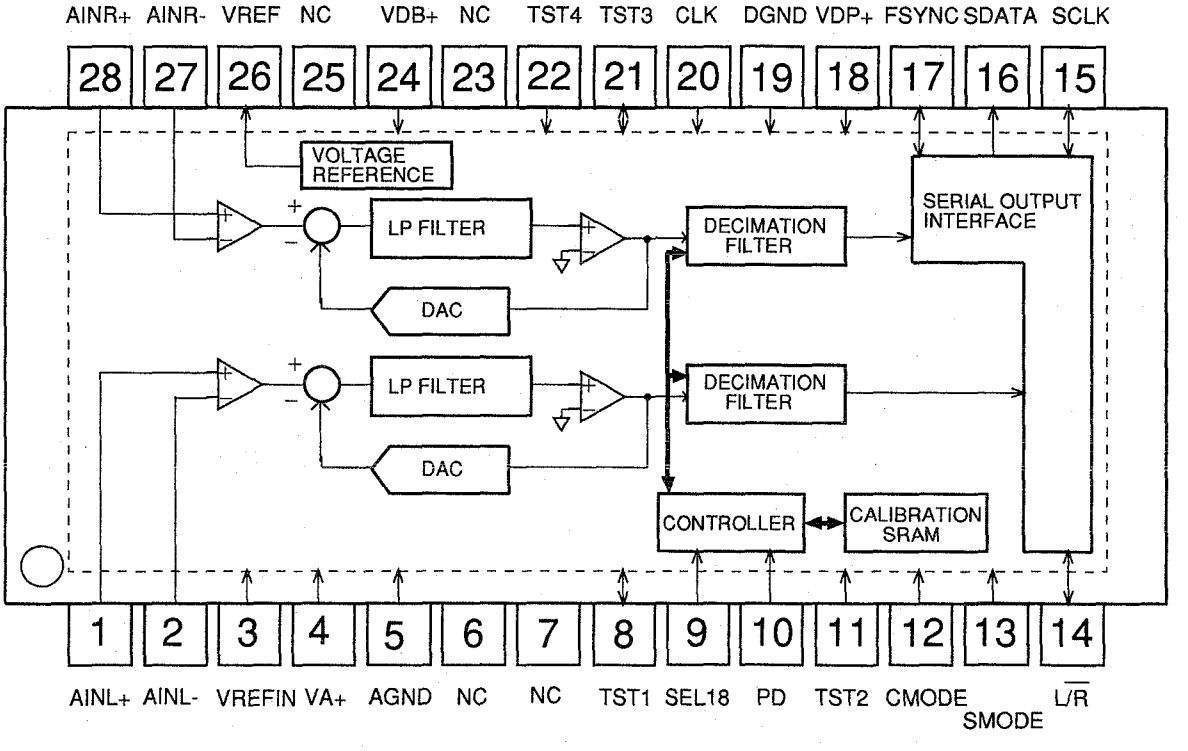
RS-30



● Pin Functions (AK5340-VS)

Pin No.	Pin Name	I/O	Function and Operation
1	AINL+	I	Lch analog non-inverting input
2	AINL-	I	Lch analog inverting input
3	VREFIN	I	Reference voltage input
4	VA+		Power supply(+5V) for analog circuit
5	AGND		GND for analog circuit
6,7	NC		
8	TST1		Test pin(open)
9	SEL18	I	Output data length select
10	PD	I	Power down pin
11	TST2		Test pin(GND)
12	CMODE	I	Master clock select
13	SMODE	I	Interface clock select
14	L/$\overline{R}$	I/O	Input channel select
15	SCLK	I/O	Serial data clock
16	SDATA	O	Serial data output
17	FSYNC	I/O	Frame synchronize clock
18	VDP+		Power supply(+5V) for digital circuit
19	DGND		GND for digital circuit
20	CLK	I	Master clock input
21,22	TST3,4		Test pin(open)
23	NC		
24	VDB+		Power supply(+5V) for digital circuit
25	NC		
26	VREF	O	Reference voltage output
27	AINR-	I	Rch analog inverting input
28	AINR+	I	Rch analog non-inverting input

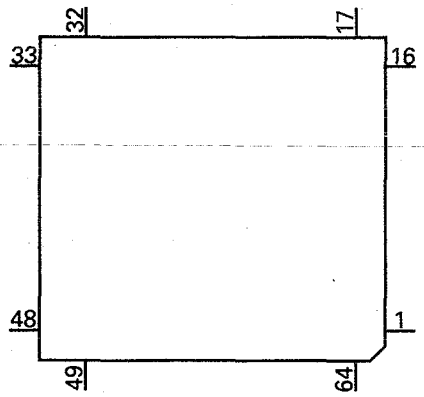
AK5340-VS


AINR+ AINR- VREF NC VDB+ NC TST4 TST3 CLK DGND VDP+ FSYNC SDATA SCLK
28 27 26 25 24 23 22 21 20 19 18 17 16 15
VOLTAGE REFERENCE
LP FILTER
DAC
DECIMATION FILTER
SERIAL OUTPUT INTERFACE
LP FILTER
DAC
DECIMATION FILTER
CONTROLLER
CALIBRATION SRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14
AINL+ AINL- VREFIN VA+ AGND NC NC TST1 SEL18 PD TST2 CMODE SMODE L/R

● Pin Functions (PD5312A)

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1	$\overline{\text{CLIP}}$	I		Clip sense input
2	NC			Not used
3	$\overline{\text{DSPACK}}$	I		Acknowledge input from DSP IC
4	DSPCD	O	C	Address output for DSP IC
5	DPD	O	C	Calibration output for DSP IC
6	PEE	O	C	Beep tone output
7	$\overline{\text{DSPCS}}$	O	C	Chip select output for DSP IC
8	$\overline{\text{DSPRST}}$	O	C	Reset output for DSP IC
9	DSPCK	O	C	Serial clock output for DSP IC
10	DSPOUT	O	C	Serial data output for DSP IC
11	DSPIN	I	C	Serial data input from DSP IC
12	$\overline{\text{LINH}}$	O		Inhibit output for LCD driver
13	LCK	O	C	Serial clock output for LCD driver
14	LDT	O	C	Data output for LCD driver
15,16	LCE1,2	O	C	Chip enable output pin for LCD driver
17	REMIN	I		Remote control signal input
18	CNVSS			GND
19	$\overline{\text{RESET}}$	I		Reset input
20	$\overline{\text{BSENS}}$	I		Back up power sense input
21	$\overline{\text{SYSB}}$	I		System remote control input
22	XIN	I		Crystal oscillating element connection pin
23	XOUT	O		Crystal oscillating element connection pin
24	VSS			GND
25	POSL	I		Position select input
26	CDS	I		Model select input
27	NC			Not used
28	DSPMUTE	O	C	Mute output for DSP IC
29	SYSPW	O	C	System power control output
30	$\overline{\text{MUTE}}$	O	C	System mute output
31	TESTIN	I		Test program mode input
32	TSEN	I		Test enable input
33	VST	O	C	Strobe pulse output for electronic volume
34	VDT	O	C	Data output for electronic volume
35	VCK	O	C	Clock output for electronic volume
36	ILM	O	C	Illumination power ON/OFF output
37–55	NC			Not used
56	ADSW	O	C	A/D converter power ON/OFF output
57	VDD			Power supply
58	VREF			A/D converter reference voltage
59	AVSS			A/D converter GND
60–63	KDT0-3	I		Key data input
64	NC			Not used

*PD5312A



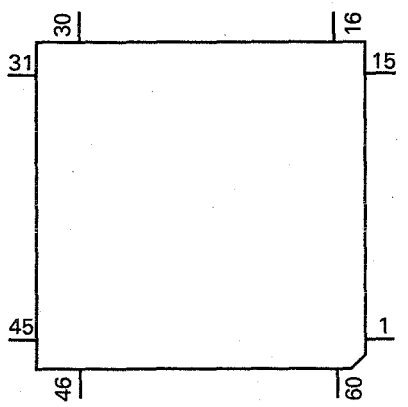
I/O Format	Meaning
C	C MOS

IC's marked by are MOS type.*
Be careful in handling them because they are very liable to be damaged by electrostatic

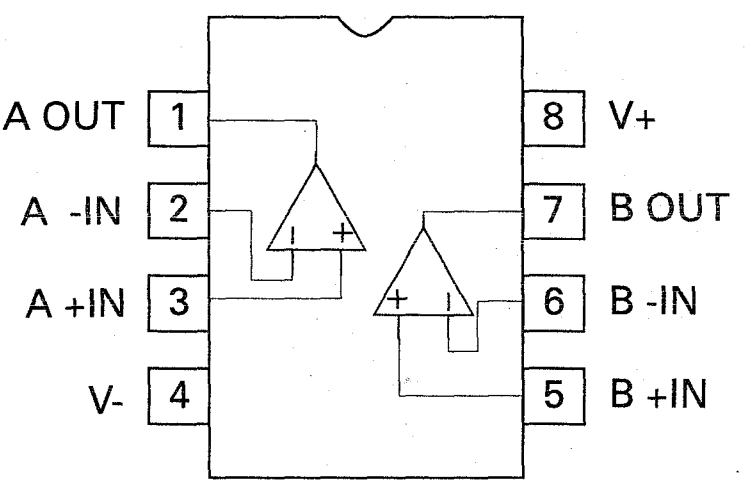
● Pin Functions (PD2038C)

Pin No.	Pin Name	I/O	Function and Operation
1–3	TP8-6	O	Test data output
4	VDD		Power supply terminal for logic circuit
5	VSS		GND
6–11	TP5-0	O	Test data output
12	VSSR		GND terminal for internal delay RAM
13	VDDR		Power supply terminal for internal delay RAM
14	VSS		GND
15–17	SDO2-0	O	Serial data output
18,19	SDI1,0	I	Serial data input (1fs)
20	LR	I	LR clock input (2fs)
21	WCK	O	Word clock output
22	FS32	O	Bit clock output (32fs)
23	FS64	O	Bit clock output (64fs)
24	EBC0	I	Bit clock input
25,26	EBCI1,0	I	Bit clock input
27	ELR0	I	LR clock input
28,29	ELRI1,0	I	LR clock input
30	SYNC	I	Synchronizing signal input
31	VDD		Power supply terminal for logic circuit
32	XI	I	Crystal oscillating element connection pin or external clock input
33	XO	O	Crystal oscillating element connection pin
34	VSS		GND
35	CKSL	I	System clock select input
36	PLOFF	I	Crystal oscillation mode or VCO oscillation mode select input
37	PD	O	Data output from phase comparator
38	VSSA		Analog GND
39	AMPO	O	Low pass filter amplifier output
40	AMPI	I	Low pass filter amplifier input
41	VDDA		Analog power supply
42–44	TES0-2	I	Test terminal
45	$\overline{RST}$	I	Reset signal input terminal
46	$\overline{CS}$	I	Chip select input
47	IFCD	I	Command or data select input from DSP controller
48	IFDI	I	Data input from DSP controller
49	IFDO	O	Data output for DSP controller
50	IFCK	I	Shift clock input from DSP controller
51	$\overline{ACK}$	O	Acknowledge signal output for DSP controller
52	VSS		GND
53–60	TP16-9	O	Test data output

*PD2038C



NJM2100M



● LCD (CAW1287)

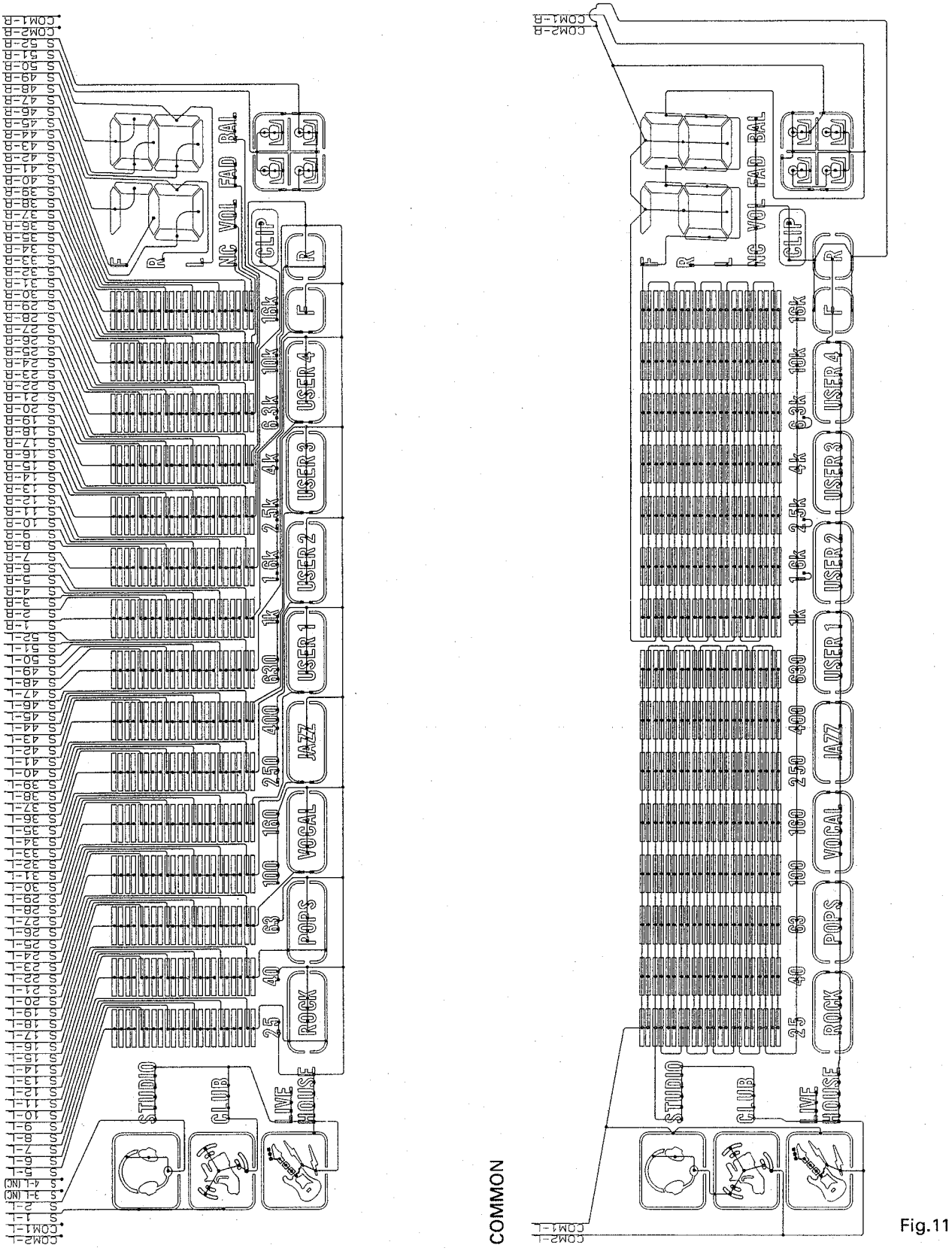


Fig.11

4. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

  Chip Resistor

  RS1/○S○○○J,RS1/○○S○○○J

  Chip Capacitor (except for CQS.....)

  CKS....., CCS....., CSZS.....

Circuit Symbol & No.	Part Name	Part No.
Unit Number	: CWM4260(UC) CWM4264(ES)	
Unit Name	: Audio Unit	
MISCELLANEOUS		
IC 302 312		TC9268F
IC 303 313		TA2028F
IC 401		AK5340-VS
IC 501		PMJ003A
IC 551 561 851 852		NJM4558MD
IC 601		PD5312A
IC 602	(S-80722AN-DK-I)	GGC1040
IC 701		PD2038C
IC 702		TC74HC393AF
IC 703		TC74HC175AF
IC 704		TC7S04F
IC 853		NJM2100M
IC 854		M5233FP
IC 952		NJM78M05A
Q 551 552 561 562		DTC314TK
Q 571 956 958 960 963		2SC2412K
Q 572 604 954 962		DTC124EK
Q 573 601		DTA124EK
Q 602 603 952		DTC124EK
Q 605		FMG5
Q 851 852		2SC2412K
Q 951		2SB1243
Q 953 964		2SA1037K
Q 955 957 965		2SD1760F5
Q 959		2SA1797
Q 966		2SD1864
D 571 601		MA151K-MH
D 572		DTZ8R2B
D 951		ERA15-02VH
D 952 960		MA3082L
D 953		MA151K-MH
D 954		MA3091L
D 955		DTZ7R5C
D 956		SC016-2
D 957		DTZ6R2C
D 958		MA151WK
D 959		MA3047M
D 961		MA151K
D 971 972		MA8180M
L 301 302 303 311	Ferri-Inductor	LAU2R2K
L 312 313 401 601	Ferri-Inductor	LAU2R2K
L 702 703	Ferri-Inductor	LAU2R2K
L 559 560 561	Inductor	LCTB2R2K2125
L 569 570 571	Inductor	LCTB2R2K2125
L 701	Ferri-Inductor	LAU1R0M
L 851 852	Ferri-Inductor	LAU2R2K
L 901	Transformer	CTT1038
L 951	Choke Coil	CTH1129
X 301	Crystal Resonator	CSS1067
X 601		CSS1084

Circuit Symbol & No.	Part Name	Part No.
EF 951		CCG1006
BZ 601		CPV1011
RESISTORS		
R 301 302 303 304 311 312 313 314		RS1/10S222J
R 305 306 315 316 703 861 862		RS1/10S104J
R 321 576		RS1/10S0R0J
R 401 712		RS1/10S0R0J
R 402 404 711		RS1/10S0R0J
R 403 603 608 611 616 617 618 619 620 622		RS1/10S102J
R 501		RS1/10S152J
R 502 503 504		RS1/10S302J
R 551 552 561 562 885 886		RS1/10S104J
R 553 554 563 564		RS1/10S153J
R 555 556 565 566		RS1/10S123J
R 557 558 567 568		RS1/10S821J
R 559 560 569 570 577		RS1/10S223J
R 571 955		RS1/10S471J
R 572		RS1/10S561J
R 573		RS1/10S223J
R 574 621 629 887 888 952 971		RS1/10S473J
R 575 865 866 953 959		RS1/10S472J
R 601 609 623 625		RS1/10S102J
R 602		RS1/10S124J
R 604 605 607 954 956 958 960 961 962		RS1/10S473J
R 612 613		RS1/10S101J
R 614 615 702		RS1/10S101J
R 624 626 627 628 713 714 883 884 969		RS1/10S102J
R 630		RS1/10S103J
R 701		RS1/10S562J
R 715 716 721 963		RS1/10S103J
R 720 873 874 879		RS1/10S103J
R 851 852 857 858 859 860 957		RS1/10S223J
R 853 854		RS1/10S114J
R 855 856		RS1/10S154J
R 863 864		RS1/10S224J
R 867 868 877 878 974 977		RS1/10S472J
R 869 870		RS1/10S563J
R 871 872		RS1/10S154J
R 875 876		RS1/10S331J
R 880		RS1/10S153J
R 881 882		RS1/10S151J
R 964 970 975 976 983		RS1/10S473J
R 965		RS1/4S102J
R 966 982		RS1/2S180J
R 967		RS1/10S512J
R 968		RS1/10S241J
R 972		RS1/4S472J
R 973		RS1/10S101J
R 978		RS1/8S471J
R 979		RS1/10S103J
R 980		RS1/10S0R0J

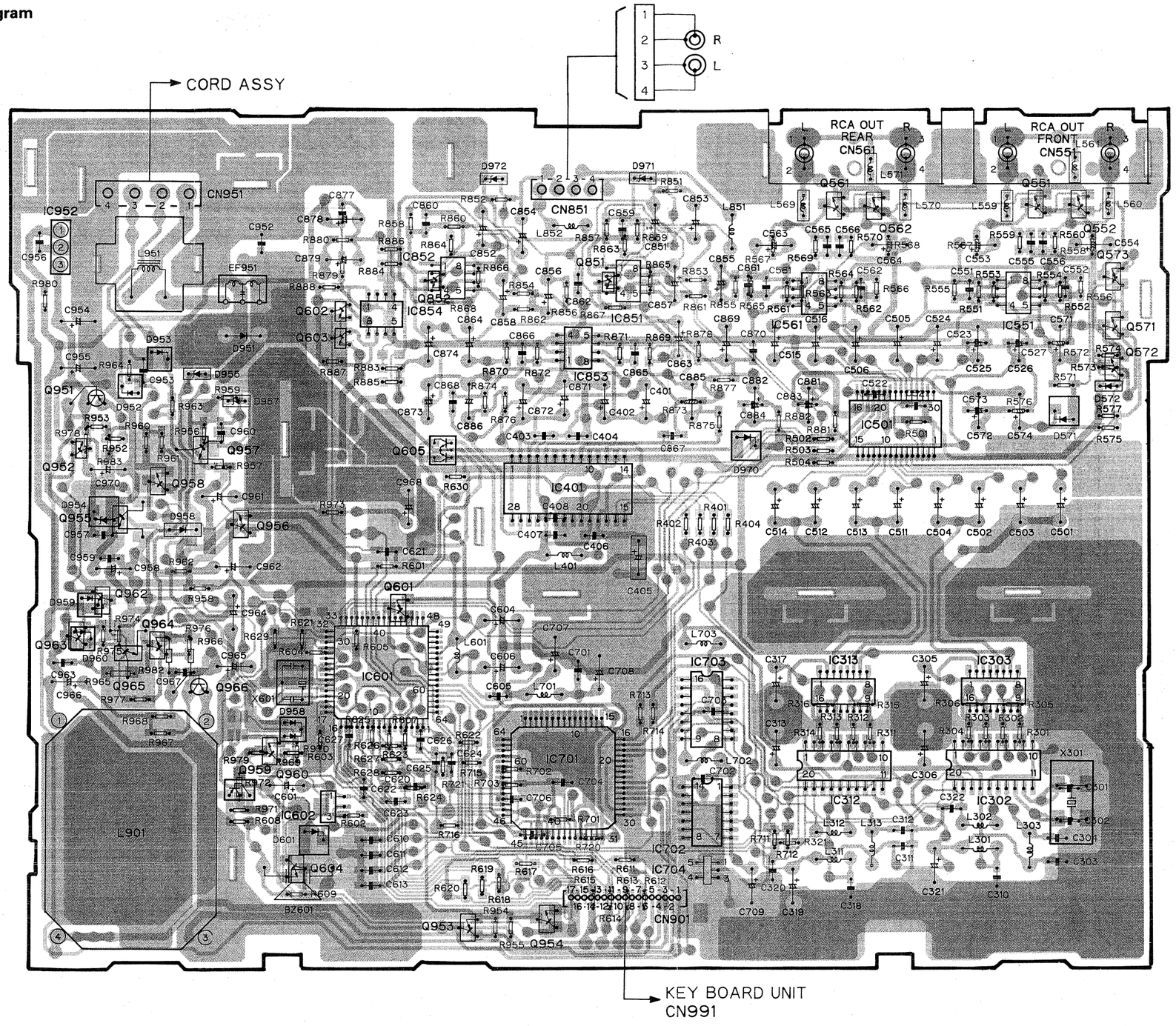
Circuit Symbol & No.	Part Name	Part No.
CAPACITORS		
C 301 302 859 860		CCSQCH090D50
C 303 311 952 967		CKSQYB473K50
C 304 312 522 523 527		CKSQYB104K16
C 305 317 524		CEAS220M10
C 306 313 401 402 501 502 503 504 505 506		CEAS4R7M35
C 310 318 407 408 573 623 701 702 703 706		CKSQYB103K50
C 319 321		CEAS220M10
C 320 322 620 621 622 624 625 626 627		CCSQCH220J50
C 403 404		CKSQYB473K50
C 405		CSZSC100M16
C 406 861 862		CKSQYB103K50
C 511 512 513 514 515 516 853 854 857 858		CEAS4R7M35
C 521		CKSQYB103K25
C 525 601		CEAS2R2M50
C 526 553 554 563	10µF/16V	CCH1190
C 551 552 561 562		CCSQCH151J50
C 555 556 565 566		CKSQYB102K50
C 564 572 574 604	10µF/16V	CCH1190
C 571 958	100µF/16V	CCH1191
C 605		CCSQCH101J50
C 606 707 871	10µF/16V	CCH1190
C 610 611 612 613		CCSQCH100J50
C 704		CKSQYB391K50
C 705		CKSYB684K16
C 708		CEAS330M16
C 709 879 961		CEAS470M16
C 851 852		CEAS010M50
C 855 856		CEAS4R7M35
C 863 864		CEAS4R7M35
C 865 866		CCSQCH120J50
C 867 868		CKSQYB332K50
C 869 881 882	220µF/10V	CCH1193
C 870 877 883 884 956 957 959 960 963		CKSQYB103K50
C 872 873 874 878	10µF/16V	CCH1190
C 885 886		CEA4R7M35NPLL
C 951 968	1000µF/16V	CCH1185
C 953		CKSYB105K16
C 954 955 964 965	10µF/16V	CCH1190
C 962	0.22F/5.5V	CCL1037
C 966 970	10µF/16V	CCH1190
Unit Number	: CWS1290(UC) CWS1291(ES)	
Unit Name	: Key Board Unit	
MISCELLANEOUS		
IC 901 902		LC7582EMT
IC 903		RS-30
Q 901		2SC2412K
D 901 902 903 904	Chip LED	CL170FGCD
D 905 906 907 908	Chip LED	CL170FGCD
D 909 910 911	Chip LED	CL170FGCD
D 912		MA3062L
S 901 902 903 904	Switch	CSG1041
S 905 906 907 908	Switch	CSG1041
S 909 910 911 912	Switch	CSG1041
S 913 914 915 916	Switch	CSG1041
S 917 918 919 920	Switch	CSG1041
IL 901 902	Lamp 14V 40mA	CEL1436
LCD901	LCD	CAW1287
RESISTORS		
R 901 905 909 913		RS1/10S822J
R 902 906 910 914		RS1/10S133J
R 903 907 911 915		RS1/10S223J
R 904 908 912		RS1/10S683J
R 916 917 918 919 920		RS1/10S102J

Circuit Symbol & No.	Part Name	Part No.
R 921 924		RS1/10S104J
R 922		RS1/10S121J
R 925 926 927 928		RS1/10S103J
R 929		RS1/2S511J
R 931		RS1/2S391J
R 932		RS1/2S391J
R 933		RS1/10S472J
R 934		RS1/2S391J
R 935		RS1/10S473J
CAPACITORS		
C 901 902		CKSQYB331K50
C 903 904		CKSQYB223K50
C 905		CSZSR100M6R3
C 906		CKSQYB103K50
C 907 908		CSZS010M16

5. CIRCUIT DIAGRAM AND PATTERN

5.1 AUDIO UNIT

● **Connection Diagram**



IC, Q

Q561 Q562 Q551 Q552

IC952

Q573

Q852 IC852 Q851 IC851

IC561 IC551

Q602 IC854 Q571

Q603 IC853 Q572

Q951

IC501 Q605

Q952 Q957

Q958 IC401

Q955 Q956

Q962 Q601

Q963 Q964

Q965

Q966 IC601

Q960 IC703 IC313 IC303

IC701 IC312 IC302

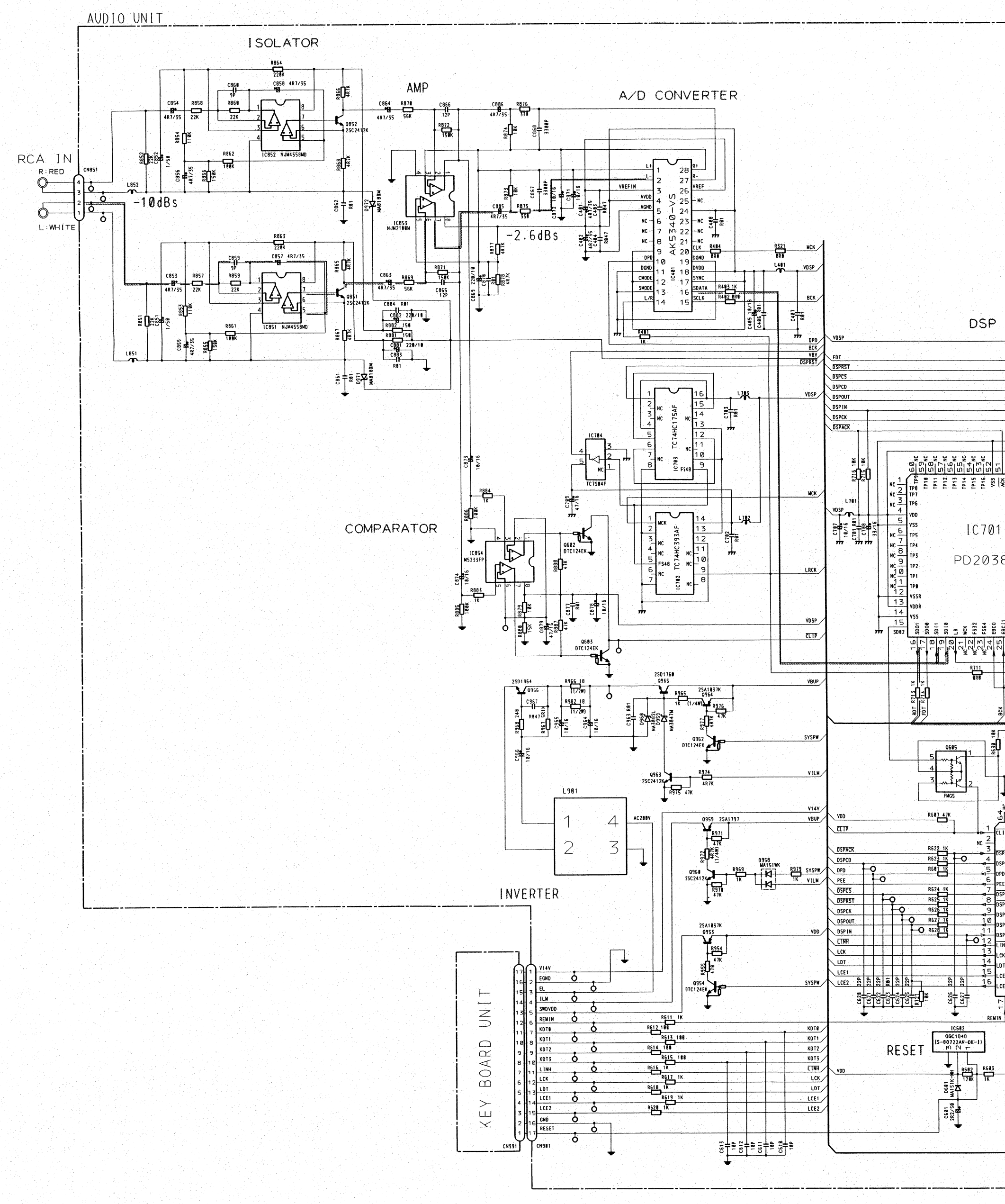
Q959 IC602 IC702

Q664 IC704

Q953 Q954

Fig.12

● Circuit Diagram

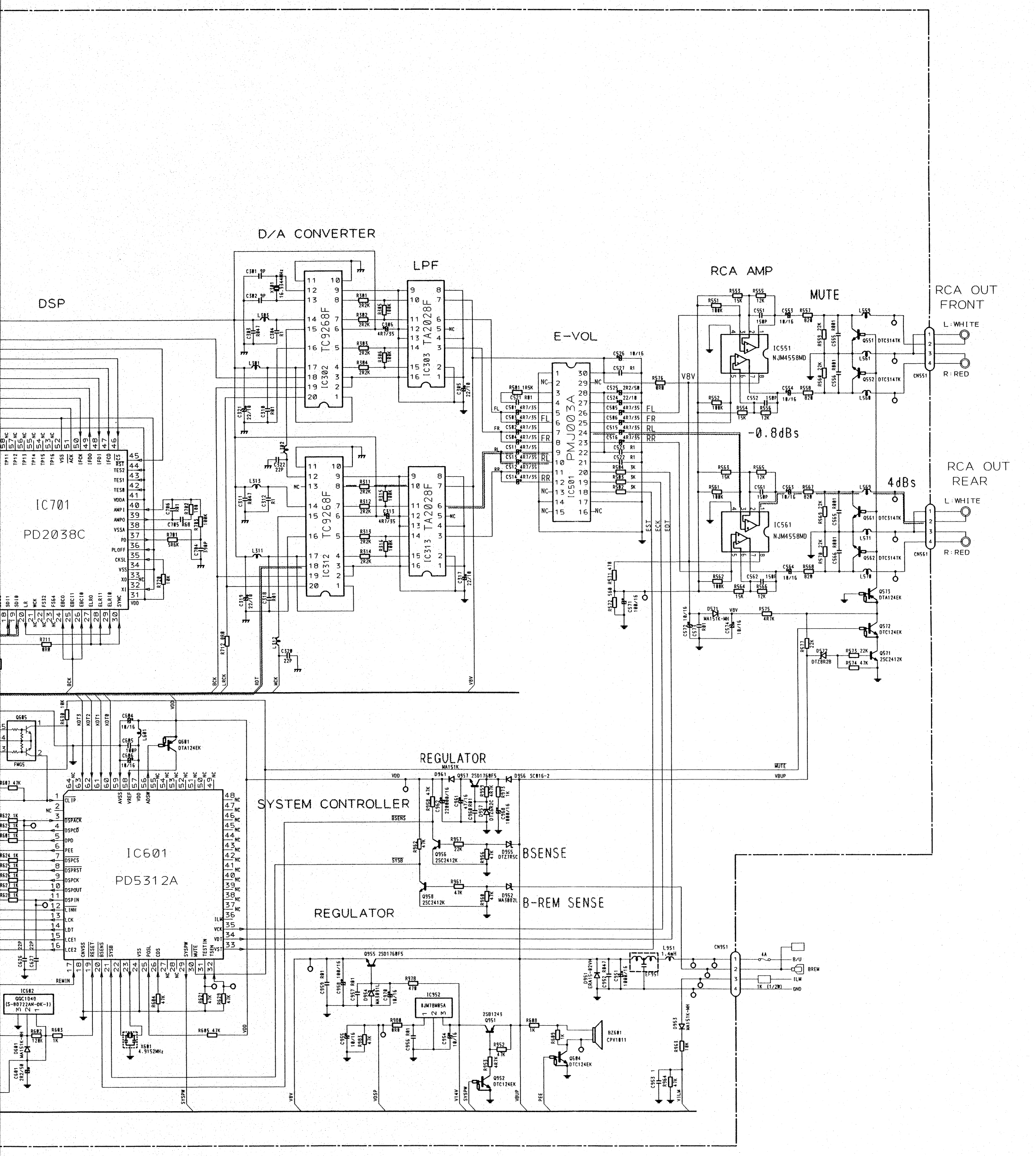


NOTE :

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resis
and capacitor fixed val
are expressed as:
2.2→2R2
0.022→R022

1 2 3 4

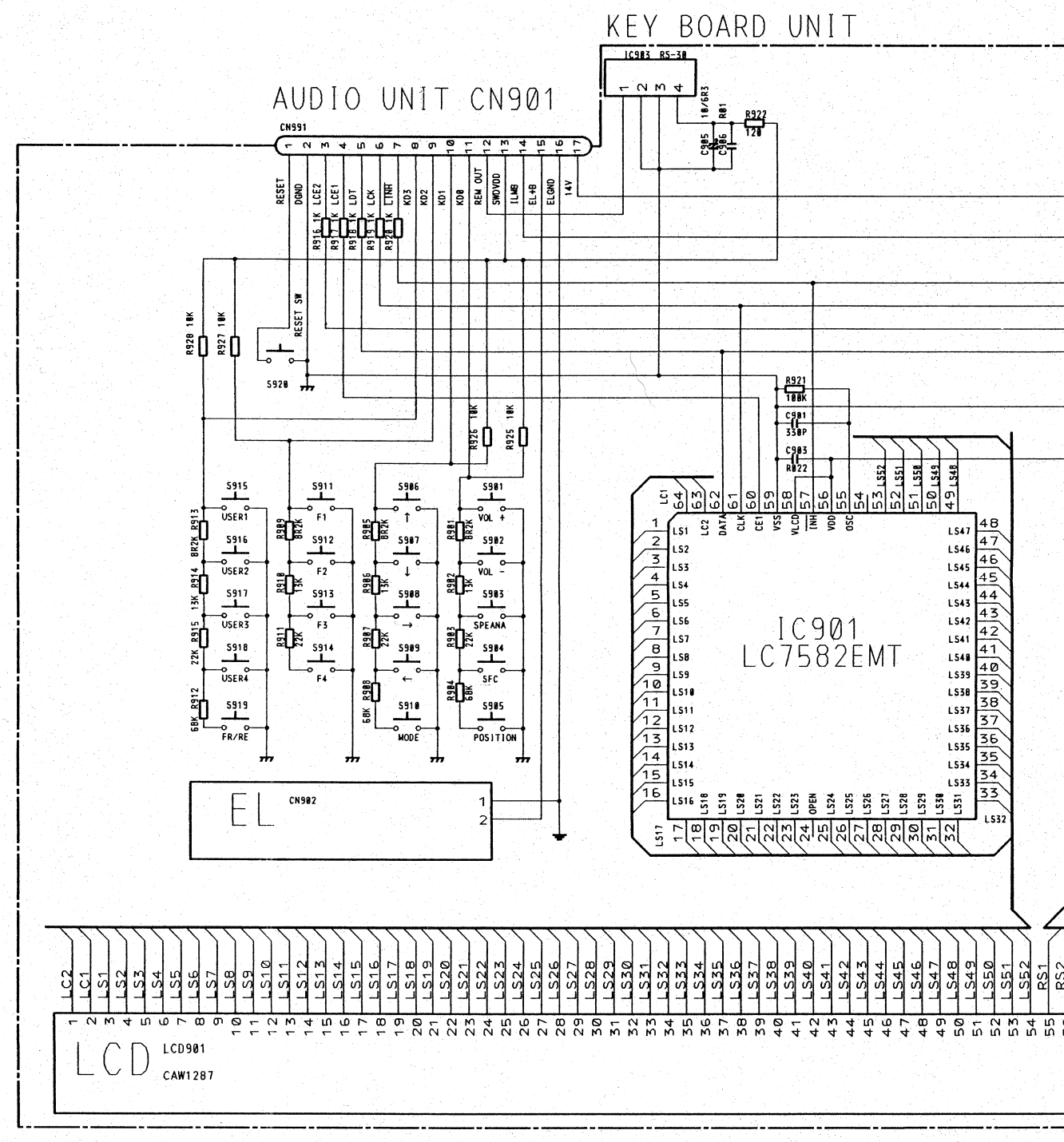


points for resistor
acitor fixed values
essed as:
2
R022

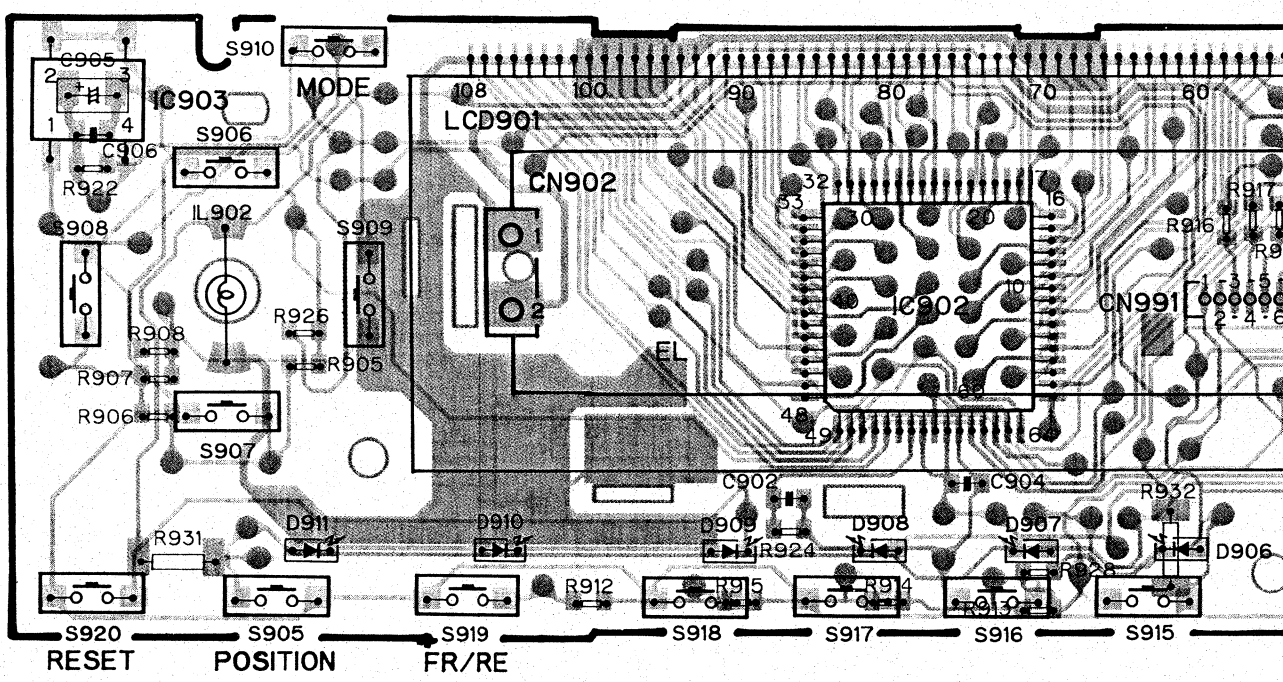
Fig.13

5.2 KEY BOARD UNIT

● **Circuit Diagram**



● **Connection Diagram**



ARD UNIT

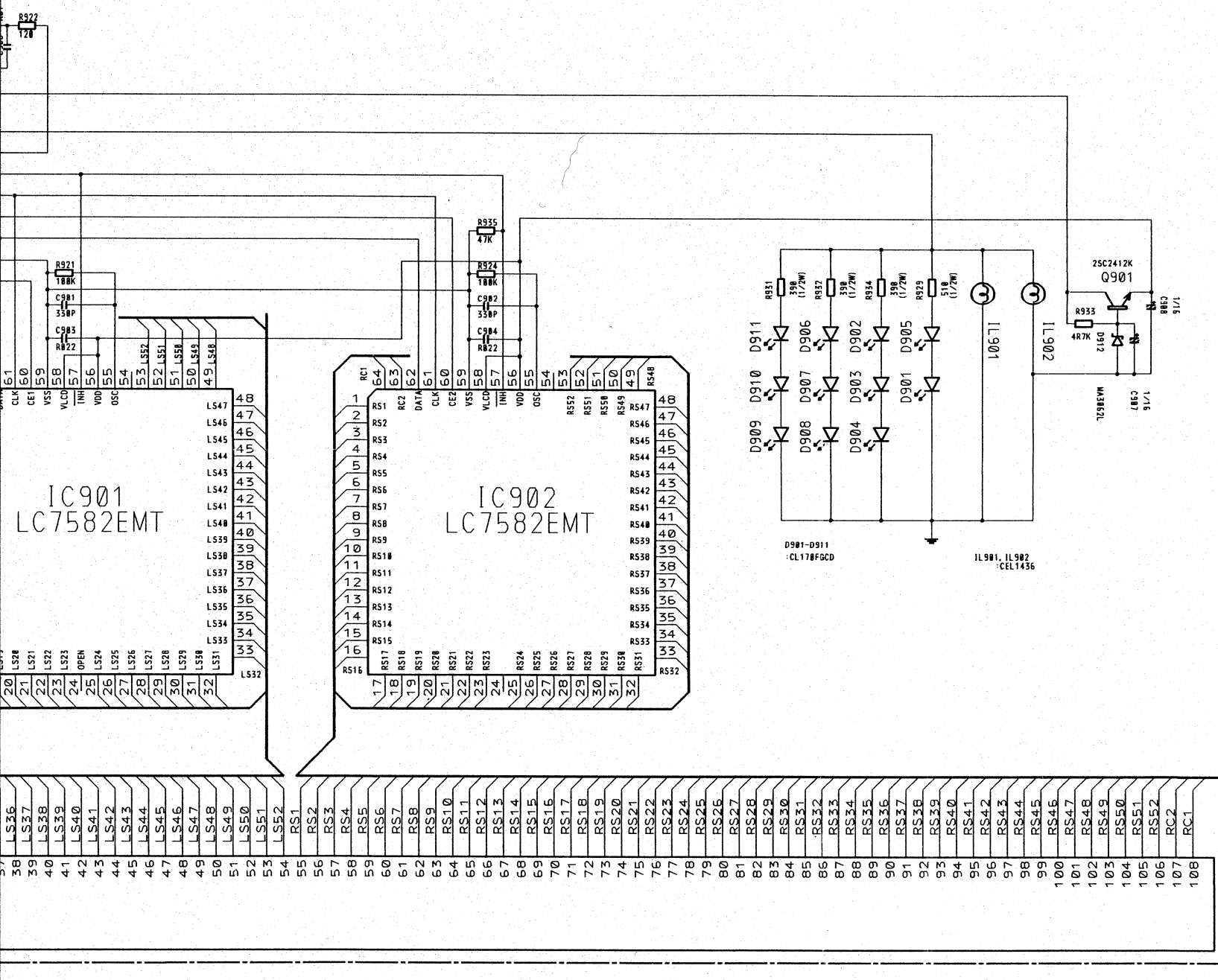


Fig.14

IC902 IC901 Q901

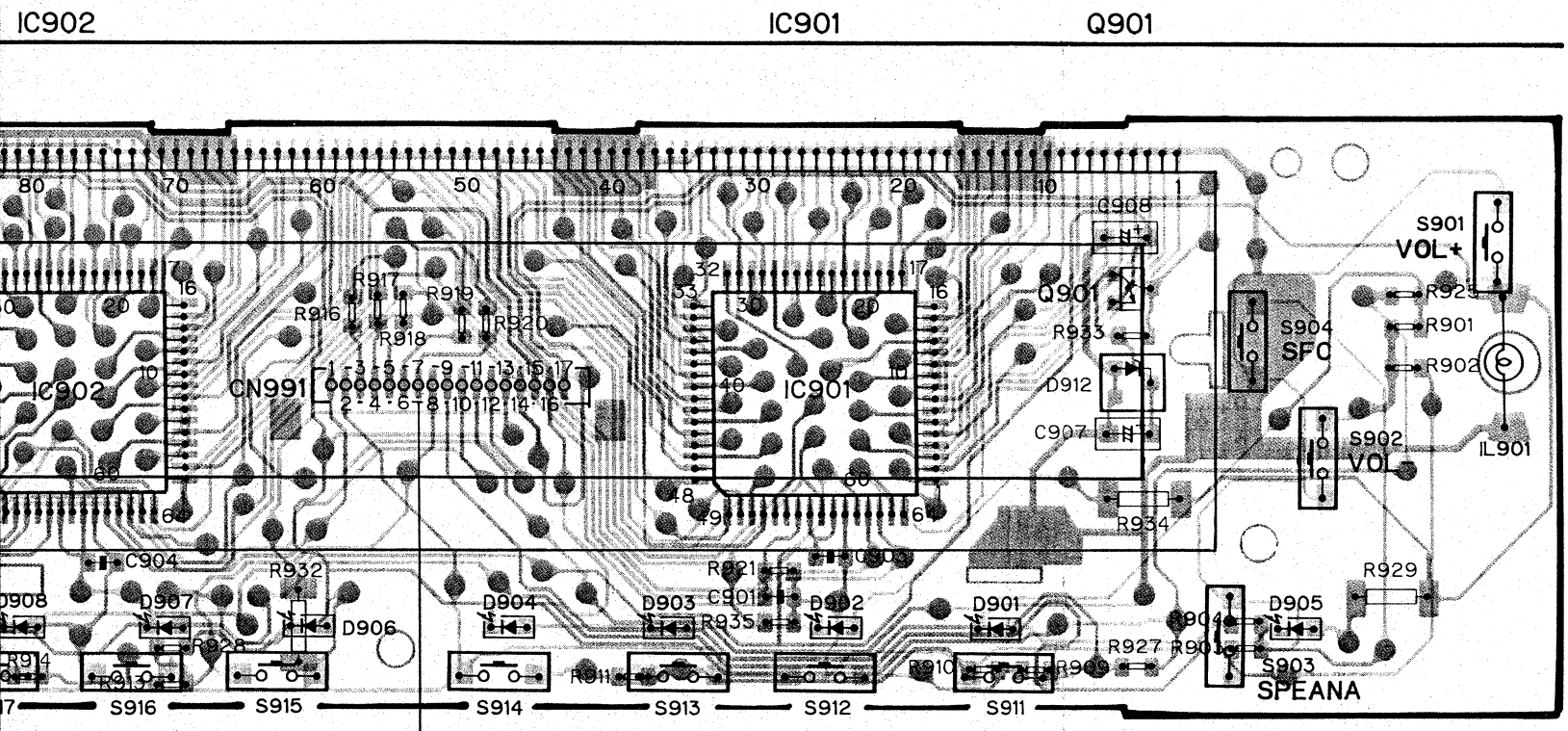


Fig.15

5 6 7 8 9

6. BLOCK DIAGRAM

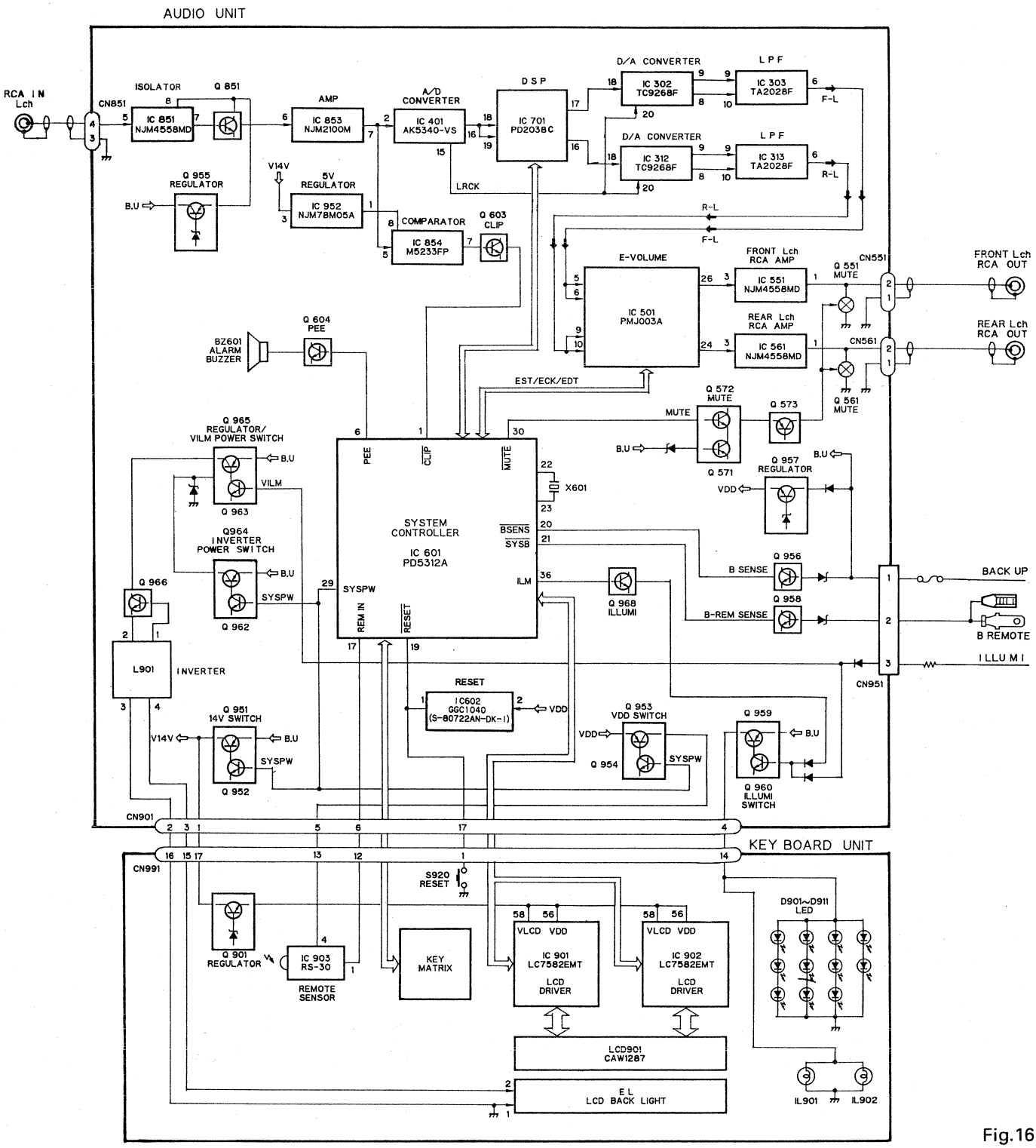


Fig.16

7. EXPLODED VIEW

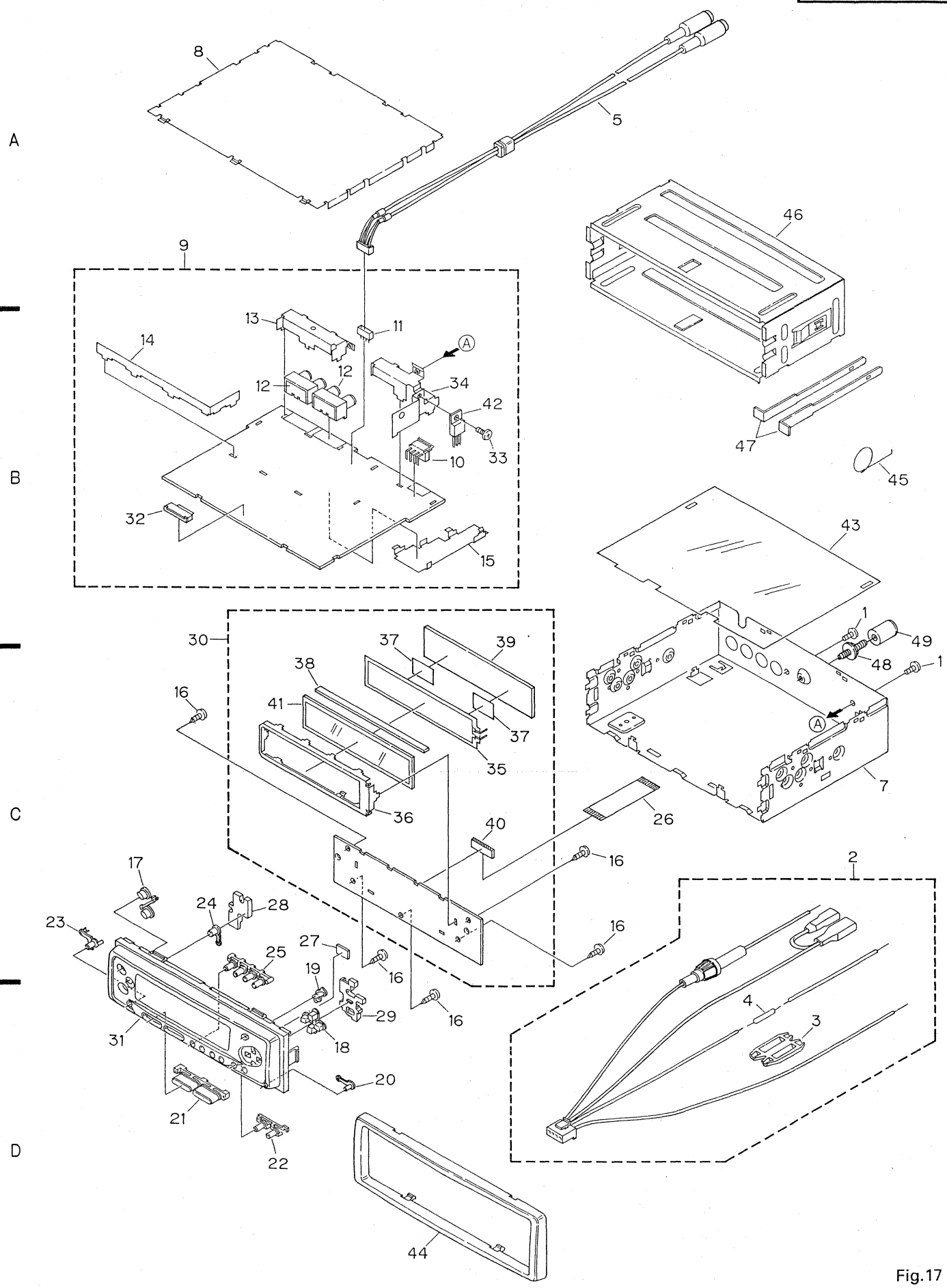
NOTE:

- Parts marked by "✱"are generally unavailable because they are not in our Master Spare Parts List.
- Parts marked by "⊙"are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

● Parts List

Mark No.	Description	Part No.
1	Screw	BSZ30P050FMC
2	Cord Assy	CDE4593
3	Cap	CNS1472
4	Resistor	RS1/2P102JL
5	Cord	CDE4594
6	·····	
7	Chassis	CNA1734
8	Case	CNB1939
9	Audio Unit(UC)	CWM4260
	Audio Unit(ES)	CWM4264
10	Plug(CN951)	CKS-461
11	Plug(CN851)	CKS1224
12	Pin Jack(CN551,561)	CKS3144
13	Holder	CNC5830
14	Earth Plate	CNC5835
15	Shield	CNC6125
16	Screw	BPZ20P080FMC
17	Button(+,-)	CAC4398
18	Button	CAC4276
19	Button(M)	CAC4399
20	Button	CAC4292
21	Button(F1-F4)	CAC4284
22	Button(FR,P)	CAC4285
23	Button(S)	CAC4286
24	Button(SFC)	CAC4283

Mark No.	Description	Part No.
25	Button	CAC4352
26	Connector	CDE4606
27	Plate	CNM4529
28	Plate	CNV4159
29	Plate	CNV4160
30	Key Board Unit(UC)	CWS1290
	Key Board Unit(ES)	CWS1291
31	Grille Unit	CXA8523
32	Connector(CN901)	CKS1955
33	Screw	BSZ30P050FMC
34	Holder	CNC5831
35	EL(CN902)	CEL1430
36	Holder	CNC6239
37	Film	CNM4349
38	Connector	CNV4163
39	Housing	CNV4196
40	Connector(CN991)	CKS1955
41	LCD(LCD901)	CAW1287
42	IC(IC952)	NJM78M05A
43	Insulator	CNM4516
44	Panel	CNS3573
45	Spring	CBH-865
46	Holder	CNC4946
47	Handle	CNC4947
48	Screw	CBA1284
49	Bush	CNV1009


1
2
A
B
C
D
8
5
9
46
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11
14
12
12
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33
10
47
45
32
15
43
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37
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38
41
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37
35
36
1
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48
1
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Fig.17

8. PACKING METHOD

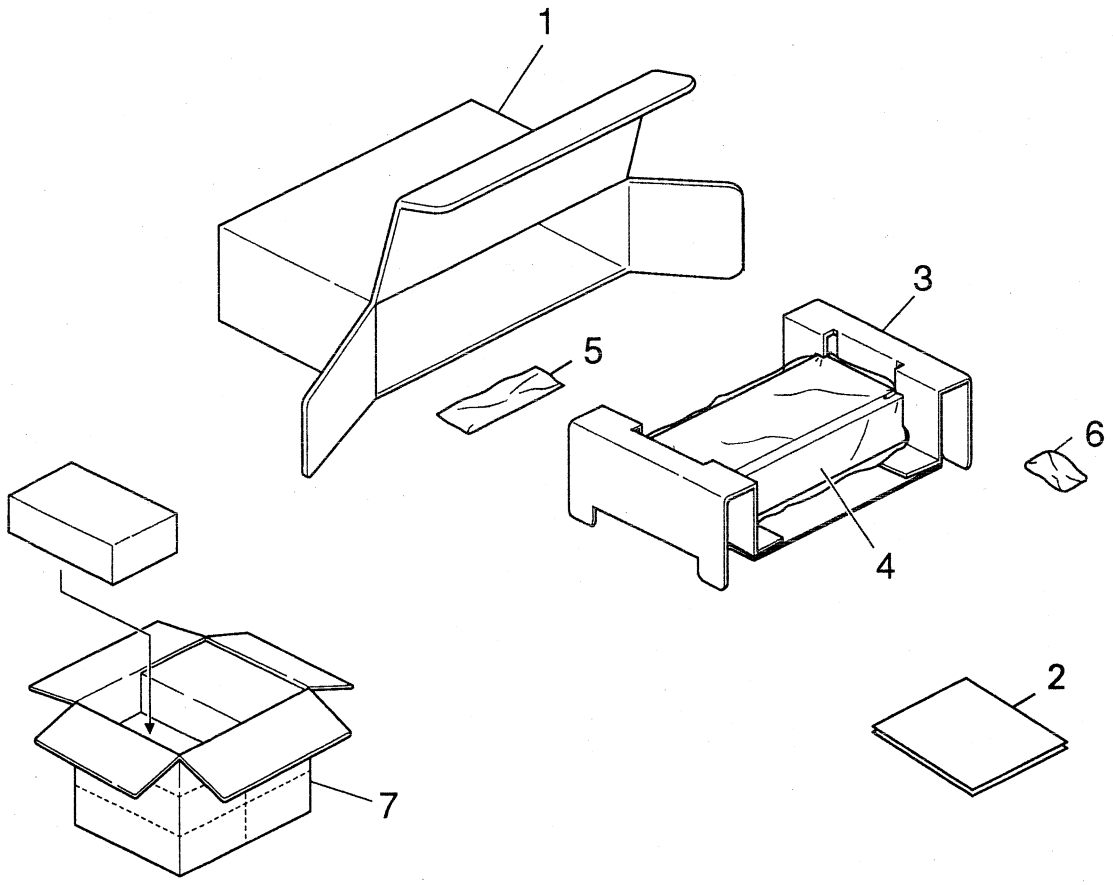

Fig.18

● Parts List

Mark No.	Description	DEQ-7200/UC Part No.	DEQ-7200/ES Part No.
	1 Carton	CHG2744	CHG2745
	2-1 Owner's Manual	CRD1912	CRD1913
*	2-2 Card	ARY1048	•••••
	3 Protector	CHP1733	CHP1733
	4 Polyethylene Bag	CEG1173	CEG-162
	5 Cord Assy	CDE4593	CDE4593
	6 Accessory Assy	CEA1918	CEA2002
	7 Contain Box	CHL2744	CHL2745

● Owner's Manual

Part No.	Language
CRD1912	English,French
CRD1913	English,French,Spanish,Arabic

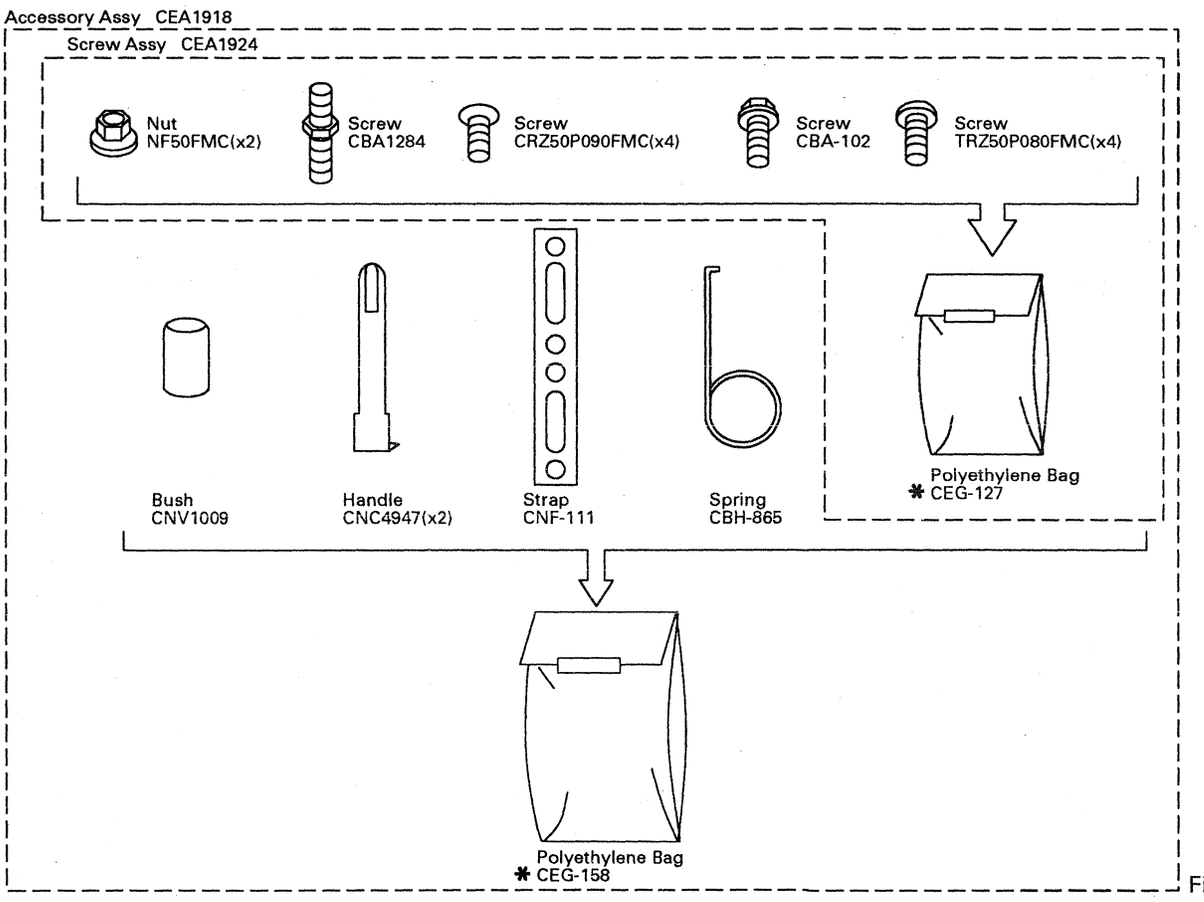
Accessory Assy CEA1918
Screw Assy CEA1924
Nut
NF50FMC(x2)
Screw
CBA1284
Screw
CRZ50P090FMC(x4)
Screw
CBA-102
Screw
TRZ50P080FMC(x4)
Bush
CNV1009
Handle
CNC4947(x2)
Strap
CNF-111
Spring
CBH-865
Polyethylene Bag
* CEG-127
Polyethylene Bag
* CEG-158

Fig.19

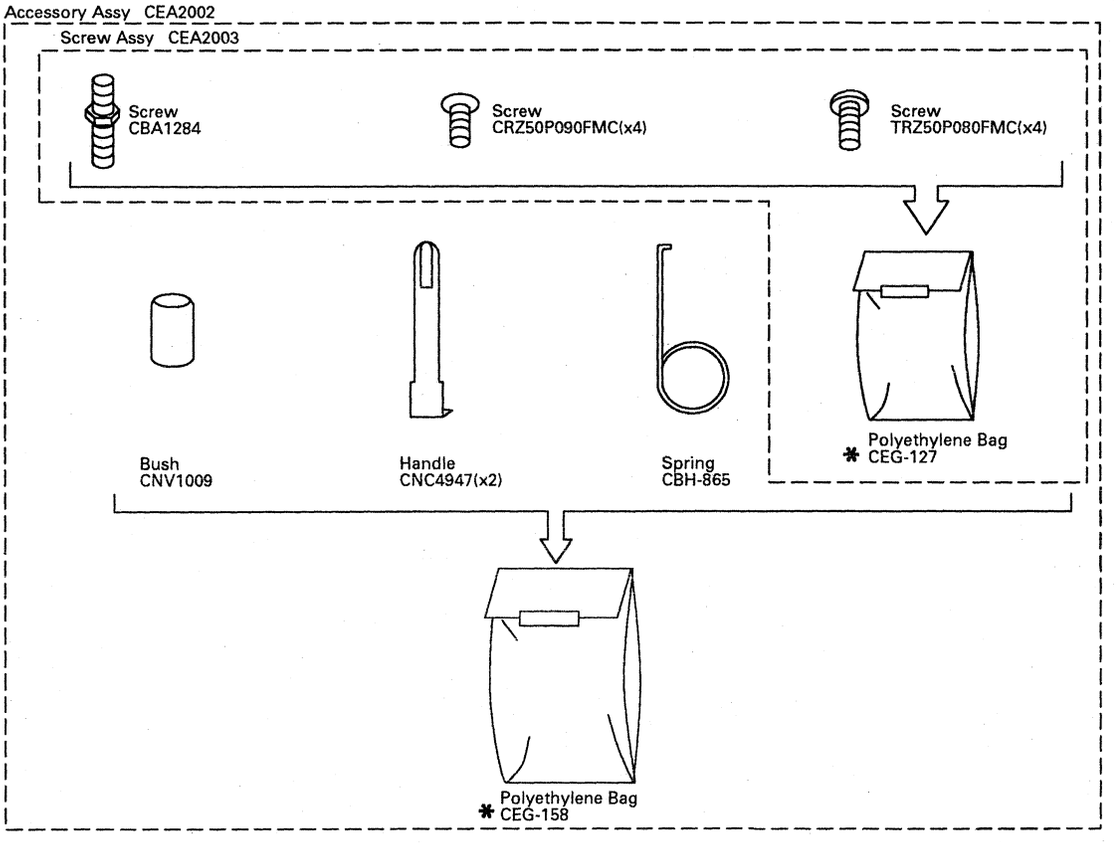
Accessory Assy CEA2002
Screw Assy CEA2003
Screw
CBA1284
Screw
CRZ50P090FMC(x4)
Screw
TRZ50P080FMC(x4)
Bush
CNV1009
Handle
CNC4947(x2)
Spring
CBH-865
Polyethylene Bag
* CEG-127
Polyethylene Bag
* CEG-158

Fig.20